

NEW SPECIES OF OLOGAMASUS BERLESE (ACAR: RHODACARIDAE) FROM AUSTRALIA AND NEW ZEALAND

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Text fig. 1-54

SUMMARY

Ologamasus Berlese, is re-defined and considered to be closely allied to *Gamasellus* Berlese. A key is given for identification of the known adults of 12 new species of *Ologamasus* (*O. cymosus*, *mansoni*, *leptosceles*, *dumosus*, *uncilis* and *validus* from New Zealand, and *O. pyrenoides*, *discutatus*, *litoprothrix*, *lindalei*, *southcolti* and *virgosus* from Australia) which are described in three groups.

INTRODUCTION

The limits of the Rhodacaridae are uncertain, but Evans (1963) pointed out that, on the basis of leg chaetotaxy, it contained a natural assemblage of genera which he termed the *Rhodacarus*-group. Genera of the *Rhodacarus*-group occur in both of the subfamilies that Ryke (1962a) separates on the structure of the adult dorsal shield; which is entire in the Ologamasinae and divided in the Rhodacarinae. Since I consider that the mites described in this paper belong to *Ologamasus* and are closely allied to *Gamasellus*, which is placed in the Rhodacarinae, I have had to disregard these subfamilies. Instead, I have separated off some of the genera of the *Rhodacarus*-group, that are listed below, by the form of their dorsal setae. This character has been used by Evans (1957) to separate *Cyrtolaelaps* and *Euryparasitus*. To apply it, as a diagnostic character to divide the *Rhodacarus*-group of genera into two groups, is unsatisfactory and it is used here only as a temporary measure. It splits *Gamasellus* into two groups and leaves only *Ologamasus aberrans*, of the previously described species, in *Ologamasus*.

The following genera of the *Rhodacarus*-group contain species with one or more pairs of obviously pilose or paddle-like setae on the dorsal shield:—

Cyrtolaelaps Berlese, 1887. Ryke (1962b) lists as a subgenus of *Cyrtolaelaps* sens. lat.

Gamasellus Berlese, 1892 (in part). Ryke (1962b) lists as a subgenus of *Cyrtolaelaps* sens. lat.

Gamaselliphis Ryke, 1961. Subgenus of *Cyrtolaclaps* sens. lat.

**Periscius* Womersley, 1961.

**Heterogamasus* Trägårdh, 1907.

Evanssellus Ryke, 1961.

Ologamasus Berlese, 1888.

**Euepicrius* Womersley, 1942.

**Stylogamasus* Womersley, 1956.

* = genus not listed as belonging to Rhodacaridae by Ryke (1962a).

Of the genera listed above, *Ologamasus* and those listed before it may be closely allied, while the position of *Euepicrius* and *Stylogamasus* is uncertain.

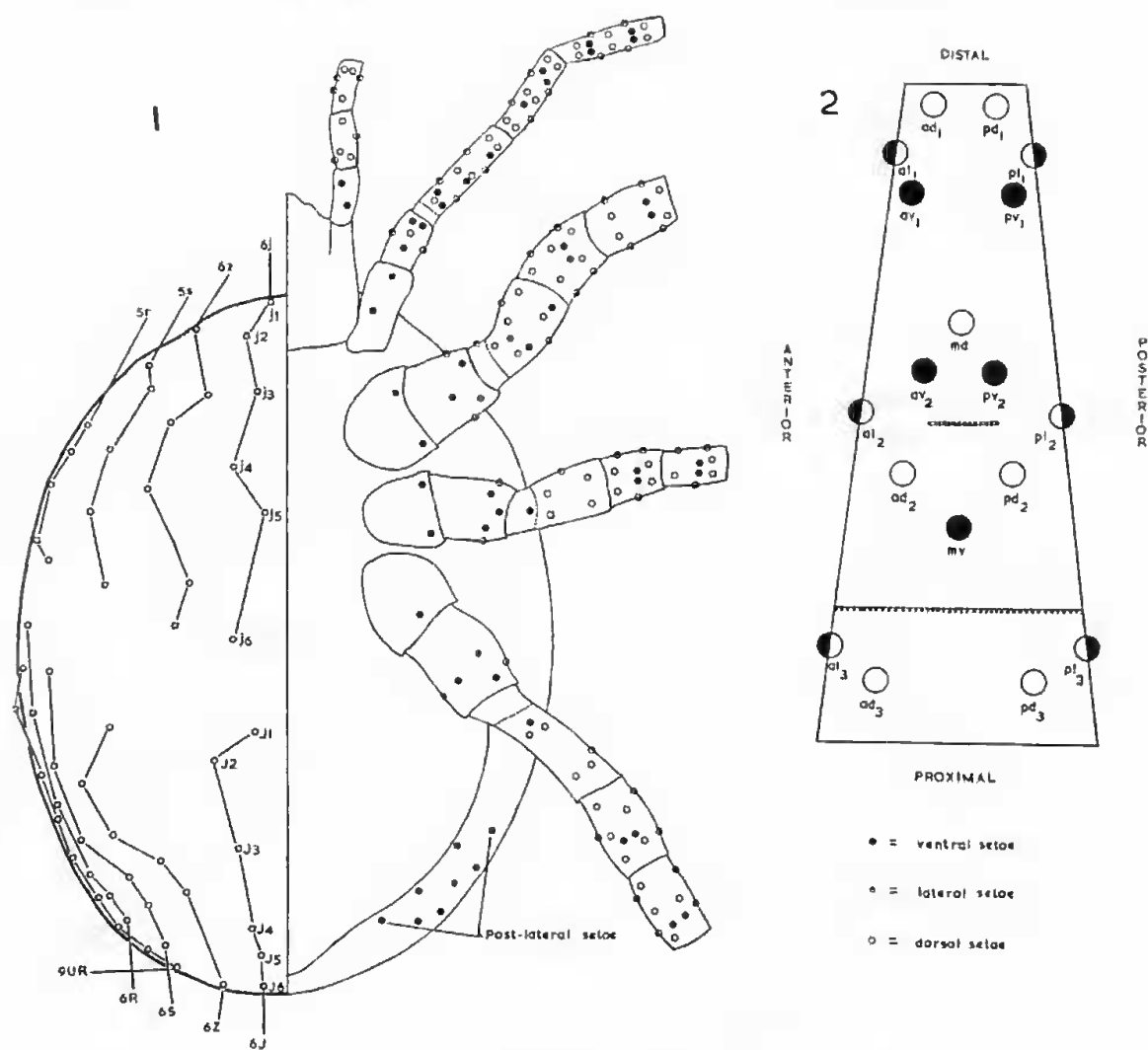
There are four species from Argentina, previously in *Ologamasus* (*O. coleoptratus* Berlese, 1888; *O. simplicior* Berlese, 1914; *O. striolatus* Berlese, 1916 and *O. cavei* Sheals, 1962), that are excluded by this paper. I have examined *O. cavei* type material and its undescribed male, as well as specimens which may be *O. simplicior*, and consider that they have affinities with South American and Australian "*Hydrogamasus*". Since these "*Hydrogamasus*" are not congeneric with *Hydrogamasus salinus* Laboulbène, 1851, but appear to be more allied to *Parasitiphis littoralis* Womersley, 1956, I would temporarily place the above species in *Parasitiphis*. These relationships are confused but, if the *Gamasiphis* I have examined are congeneric with *G. pulchellus* Berlese, 1887, it is certain that the above species do not belong to *Gamasiphis*, which differs, among other characters, in having a reduction in the number of setae on genu III and IV.

MATERIAL AND METHODS

The mites belonging to *Ologamasus* are from New Zealand and Australia, and were extracted from moss and litter by using desiccating funnels. They have been mounted in either a gum chloral medium or in lactic acid, before being drawn with the aid of a camera lucida. The use of two methods of mounting means that the specimens were squashed in varying degrees. The distortion of squashed specimens is mainly lateral and the effect can be seen by comparing fig. 36 and fig. 42, which are of mites of about the same shape.

The following type material has been deposited outside the South Australian Museum, Adelaide. Female and male paratypes of *Ologamasus cymosus* and *pyrenoides*, and male paratype of *O. discutatus*, at the British Museum (Natural History), London. Female and male paratype of *O. cymosus* at the Dominion Museum, Wellington. Female and male paratype of *O. pyrenoides* at the Natal Museum, Pietermaritzburg.

The terminology generally is that of Evans (1957), except that *apotele* is used instead of palptarsal seta and *spermodactyl* instead of spermatophoral process. The position of *post-lateral setae* is shown on fig. 1. The terminology for leg and pedipalp chaetotaxy is that of Evans (1963 and 1964), see fig. 1 and 2. The terminology for dorsal chaetotaxy merely approximates to that of Lindquist and Evans



EXPLANATION OF FIGURES

Fig. 1-2. Diagrammatic representation of the chaetotaxy of *Ologamasus discutatus* sp. nov. female.

- Fig. 1. Dorsum, post-lateral setae and basal segments of palp and leg.
- Fig. 2. Tarsus of legs II, III or IV.

(1965), since I know of this paper only through correspondence with Dr. Evans. One certain difference is that I have numbered the setae of each dorsal row as if that species had a complete series; see fig. 1. The single measurement given is the length of the idiosoma of the mounted holotype, allotype or morphotype, to the nearest 10μ.

Family RHODACARIDAE Oudemans, 1902.

Genus *Ologamasus* Berlese, 1888, *nec* Berlese, 1906.

Syn: *Ologamasellus* Berlese, 1914.

Type: *Ologamasus aberrans* Berlese, 1888.

The following characters of the genus place it in the *Rhodacarus*-group. The leg chaetotaxy is of the type in which the setal formula of tibia I is (2-6/4-2). The apotele is three tined, with one tine reduced and without an associated hyaline flap. In the female the metasternal setae are on the sternal shield, and the genital shield is truncated posteriorly and separate from a ventrianal shield. In the male the genital orifice is presternal, and there is a distally free spermodactyl and an armed leg II.

Within the *Rhodacarus*-group, *Ologamasus* is limited to the list of genera given in the above introduction by the presence of obviously pilose setae on the dorsal shield, it is separated from all the genera listed before it and from *Euepicrius* by having an entire dorsal shield in the female and usually in the male also. It can be separated from *Stylogamasus*, which has an entire dorsal shield in the adult, by having the sternal shield separate from endopodal shields IV in all species that have the ventrianal shield separate from the dorsal shield, and also by the ventral setae on the genu and tibia of legs III and IV not being pilose.

There are a number of characters, not mentioned above, which occur in all, or most, of the adults of the genus. The denticles on the deutosternum are not always very clear, but they appear to be in six or seven transverse rows and never nine rows as in *Cyrtolaelaps* and *Euryparasitus*. The idiosoma is strongly convex dorsally and well covered with sclerotized shields. Most species seem to have produced a sticky exudation, similar to that of some *Cryptostigmata*, which may cover a lot of the opisthosoma and have dirt and fungal hyphae adhering to it. The degree of fusion of the shields is very variable, but the peritrematal shield always merges with the dorsal shield anteriorly and exopodal shields IV posteriorly. The sternal shield is always fused to endopodals II. In the female there is a crescent shaped, endogynial shield fitting into the posterior concavity of the sternal shield and the anterior margin of the genital shield is thin and almost hyaline. The chaetotaxy of genu III and IV is (2-4/2-1) and (2-5/2-1) which differs from *Cyrtolaelaps*, genu III is (2-4/2-2); *Euepicrius*, genu IV is (2-5/1-1); *Sessiluncus*, genu III (2-4/1-1) and genu IV is (2-5/1-1); *Gamasiphoides*, genu III is (2-4/1 or 2-1) and genu IV is (2-5/1-1); and *Gamasiphis*, genu III is (2-4/1-1) and genu IV is (2-5/1-0). On the palp genu, al_1 is short and spatulate with a lateral tine, while al_2 is longer and slightly spatulate near the tip.

On the palp femur, *al* is short and pilose near the tip. The dorsal setae of leg IV have been drawn for all species and it can be seen that on the tarsus, *md* is long and filamentous, while *pd*₂ is shorter, or if subequal, it has a tip which is blunt, spatulate or pilose. This is also true of a number of *Gamasellus* and *Gamaselliphis* with pilose dorsal setae. The smallness of *pd*₁ and *pd*₂ compared with *ad*₁ and *ad*₂ on femur IV, occurs in all but one *Ologamasus* species, and is found in a number of Rhodacarid genera. The ambulacral apparatus of leg I has smaller claws than those of the other legs and is without a pulvillus.

In the deutonymphs of the three species described there is a divided dorsal shield and the setal form is similar to that of the adults. The deutonymph of *Ologamasus cymosus*, unlike its own adult but like the adults of the other two groups of species, has twenty-two pairs of setae on the anterior dorsal shield. Only one protonymph has been described.

The new species of *Ologamasus* are dealt with in three groups. From Berlese's description of *Ologamasus aberrans*, it could belong to the *pyrenoides*-group or *cymosus*-group, but it should probably be placed in a group of its own. It should be noted, that in my re-definition of *Ologamasus*, I no longer exclude species in which the female ventrianal shield is not fused to the dorsal shield, as was done by Berlese (1888). This change may have to be revoked later, in which case the *discutatus*-group will be excluded from *Ologamasus*, to form a new genus, or to be placed in *Gamasellus*, which would in turn have to be re-defined to include species with an entire dorsal shield in the adult.

KEY TO *OLOGAMASUS* SPECIES FROM AUSTRALIA AND NEW ZEALAND

FEMALES

- | | |
|---|----------------------------|
| 1. Ventrianal shield fused to dorsal shield and
sternal shield fused to endopodal shields
IV. <i>cymosus</i> -group | 2 |
| Ventrianal shield fused to dorsal shield and
sternal shield not fused to endopodal
shields IV. <i>pyrenoides</i> -group | <i>pyrenoides</i> sp. nov. |
| Ventrianal shield not fused to dorsal shield
and sternal shield not fused to endopodal
shields IV. <i>discutatus</i> -group | 6 |
| 2. Vertical setae simple | 3 |
| Vertical setae pilose | 5 |

- | | |
|--|------------------------------|
| 3. Femur IV with 2 conical spurs | <i>cymosus</i> sp. nov. |
| Femur IV without conical spurs | 4 |
| 4. Dorsal setae in row <i>R</i> of normal length (subequal with <i>S1</i>) and on femur IV, <i>pd</i> ₂ about $\frac{1}{4}$ the length of <i>ad</i> ₂ | <i>masoni</i> sp. nov. |
| Dorsal setae in row <i>R</i> very small (subequal with <i>s</i> ₁) and on femur IV, <i>pd</i> ₂ is longer than <i>ad</i> ₂ | <i>leptosceles</i> sp. nov. |
| 5. Femur III without conical spurs and dorsal setae in row <i>R</i> are pilose | <i>dumosus</i> sp. nov. |
| Femur III with 1 conical spur and dorsal setae in row <i>R</i> are simple | <i>nucilis</i> sp. nov. |
| 6. Vertical setae are simple | <i>litoprothrix</i> sp. nov. |
| Vertical setae are pilose | 7 |
| 7. No dorsal setae on leg IV are pilose | 8 |
| Pilose dorsal setae on leg IV | 9 |
| 8. Femur IV without a sickle-like spur | <i>discutatus</i> sp. nov. |
| Femur IV with sickle-like spur | <i>tindalei</i> sp. nov. |
| 9. One pair of ventral setae are pilose and seta <i>v</i> on femur IV is simple | <i>southcotti</i> sp. nov. |
| Three pairs of ventral setae are pilose and seta <i>v</i> on femur IV is a short spur | <i>virgosus</i> sp. nov. |

MALES

- | | |
|--|----------------------------|
| 1. Sternogenital shield not fused with ventrianal shield and peritrematal shield fused with ventrianal shield. <i>cymosus</i> -group | 2 |
| Sternogenital shield fused with ventrianal shield and peritrematal shield fused with ventrianal shield. <i>pyrenoides</i> -group | <i>pyrenoides</i> sp. nov. |
| Sternogenital shield not fused to ventrianal shield and peritrematal shield not fused with ventrianal shield or, if partially fused, the ventrianal shield is not fused to the dorsal shield. <i>discutatus</i> -group | 4 |
| 2. Vertical setae are pilose and tibia II is armed | <i>validus</i> sp. nov. |
| Vertical setae are simple and tibia II is unarmed | 3 |

- | | |
|---|----------------------------|
| 3. Dorsal setae in row <i>R</i> are simple and there is a nodule on the posteriolateral surface of femur II | <i>mansoni</i> sp. nov. |
| Dorsal setae in row <i>R</i> are pilose and there is no nodule on the posteriolateral surface of femur II | <i>cymosus</i> sp. nov. |
| 4. Dorsal shield divided into two parts | <i>discutatus</i> sp. nov. |
| Dorsal shield entire | 5 |
| 5. Ventrianal shield is fused to the dorsal shield | <i>tindalei</i> sp. nov. |
| Ventrianal shield is not fused to dorsal shield | <i>southcotti</i> sp. nov. |

CYMOSUS—GROUP

The six species belonging to this group are from North Island, New Zealand. The adults range in length of idiosoma from 350 μ to 890 μ .

Female. Gnathosoma. The anterior edge of the tectum curves forwards from the sides to a central, pointed process. The margin is denticulate, some of the teeth may be large, sometimes forming a pointed process each side of the central process. The chelicerae have three teeth on the movable digit and three or four teeth, sometimes with a series of small teeth distally, on the fixed digit. The rostral and internal posterior rostral setae are longer than the external posterior rostral and capitular setae. On the palp trochanter, *av* is pilose near the tip, while *pv* is simple.

Idiosoma. Obvious reticulation on the sclerotized shields occurs in the three species with pilose vertical setae. The dorsal shield is fused posteriorly with the ventrianal shield, a short lateral fissure separating it from the anterior of the ventrianal shield and the posterior of the peritrematal shield. The peritrematal shield is sometimes fused with the ventrianal shield, but when it is separate, it proceeds posteriorly well on to the opisthosoma, coming gradually to a point. There is a single pair of prae-endopodal shields. The sternal shield is fused with all the endopodal shields. There are fewer setae on the idiosoma in this group compared with the other two groups of species and the post-lateral setae and dorsal row of setae, *UR*, are not considered to exist. There are usually twenty-one pairs of setae on the podonotum, the anterior seta of row *r* in the two other groups being missing. The chaetotaxy of the opisthonotum is more variable, especially laterally, but there are always five setae in row *Z* and four setae in row *S*. In the three species with pilose

vertical setae there are five, instead of four, setae in row *J*. There are always both pilose and simple setae on the dorsal shield. The pilose setae sometimes have at their tip what may be the rudimentary equivalent of the diaphanous flap that occurs in the *discutatus*-group. The chaetotaxy of the venter is regular.

Legs. There is a conical spur on at least femur II, and sometimes on femur III and IV as well. Also a number of setae, especially on the proximal segments of leg IV, are large and thorn-like.

Male. The movable digit on the chelicerae has the same number of teeth as the female. The spermodactyl is only slightly longer than the movable digit and is fairly stout. The dorsal shield is always entire. The sternogenital shield is separate from the ventrianal shield. In *O. validus* there are eight ventral setae and not seven as there are in the other two males. Also it has tibia II armed as well as femur II and genu II. There are never any conical spurs on femur III and IV.

***Ologamasus cymosus* sp. nov.**

Female. Fig. 3-5. Idiosomal length, 400 μ .

The peritrematal shield is separate from the ventrianal shield. The vertical setae, and two other pairs of dorsal setae, are simple, the others being pilose. The central dorsal setae are blunt ended and only pilose distally. The lateral dorsal setae, including the whole of row *r* and *R*, are filamentous and pilose along most of their length. The first pair of sternal setae are blunt at the tip and the fourth pair are small. The anterior four pairs of ventral setae are smaller than the others and the posterior two pairs are pilose, as in row *R*. There is a conical spur on femur II and III, and two conical spurs on femur IV. On trochanter IV, *al* is thorn-like.

Male. Fig. 6 and 7. Idiosomal length, 350 μ .

The spermodactyl is slightly sinuous, tapering gradually to a blunt point. The dorsal setae are similar to those of the female, but the lateral ones are less pilose, as is also true of the posterior two pairs of ventral setae. The first pair of sternogenital setae are less than half the length of the others. The femur and genu of leg II are armed.

Deutonymph. Fig. 8 and 9. Idiosomal length, 360 μ .

There is obvious reticulation on the shields. The dorsal chaetotaxy is similar to the adults, but there is one more pair of setae on the anterior dorsal shield. The form of the central dorsal setae is like that of the adults, but the lateral ones are small and less pilose. As in the adult the posterior two pairs of ventrals are pilose and on trochanter IV, *al* is thorn-like.

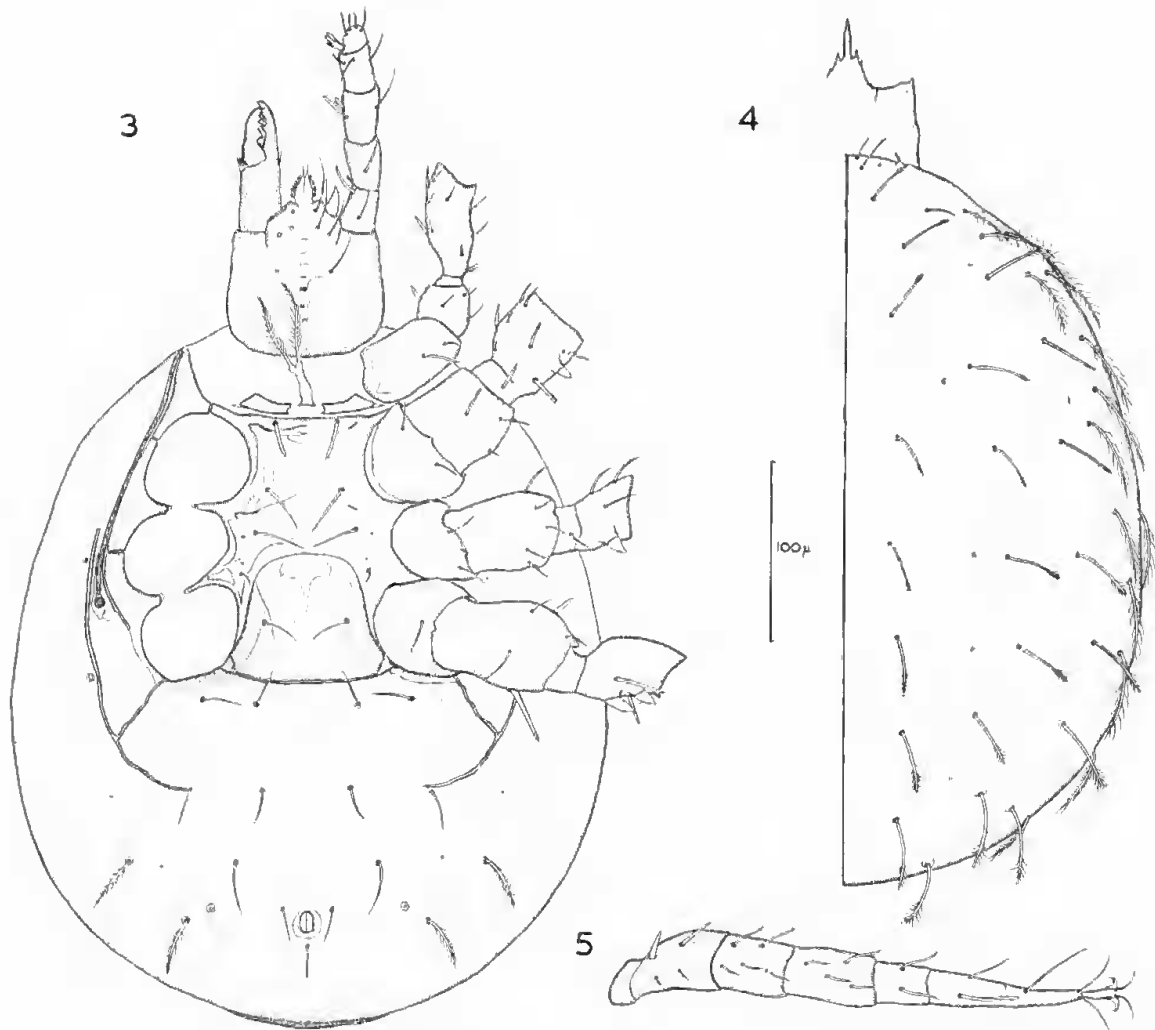


Fig. 3-5. *Ologamasus cymosus* sp. nov.

Fig. 3. Venter of female.

Fig. 4. Dorsum of female.

Fig. 5. Dorsum of distal segments from leg IV of female.

Locality: North Island, New Zealand; holotype female, allotype male, morphotype deutonymph, 6 paratype females, 8 paratype males and 2 paratype deutonymphs from leaf mould, Botanical Gardens, Wellington, December, 1960, coll. D. C. M. Manson.

***Ologamasus mansonii* sp. nov.**

Female. Fig. 10-12. Idiosomal length, 470 μ .

The peritrematal shield is separate from the ventrianal shield. The vertical setae are simple. There are more simple dorsal setae than on *O. cymosus*, which is most striking in row *R*. The sternal setae are as *O. cymosus*. All the ventral setae are simple. The lateral fissure is notched around a pore, about the level of the posterior

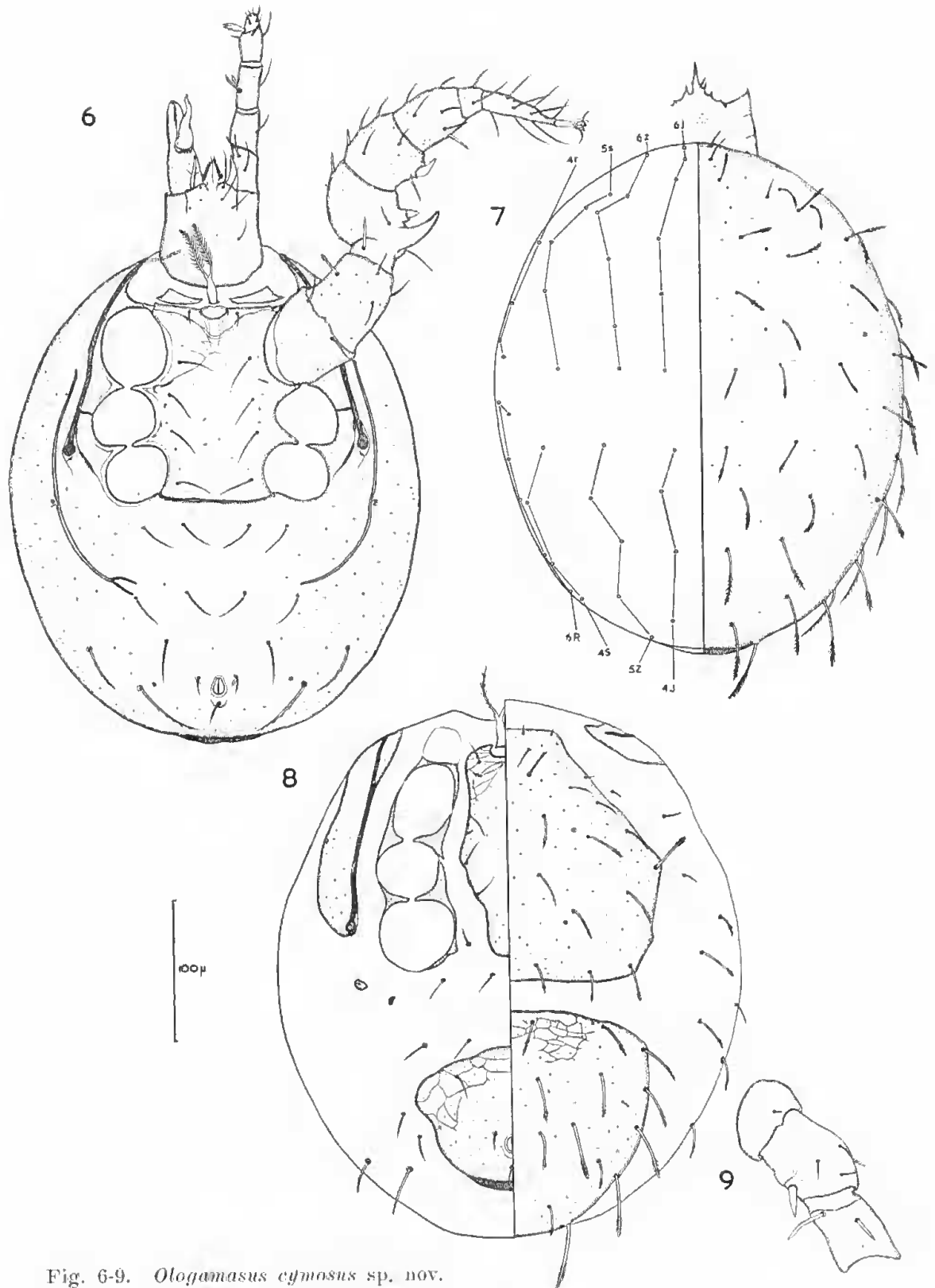


Fig. 6-9. *Ologamasus cymosus* sp. nov.

Fig. 6. Venter of male.

Fig. 7. Dorsum of male.

Fig. 8. Venter and dorsum of deutonymph.

Fig. 9. Venter of basal segments from leg IV of deutonymph.

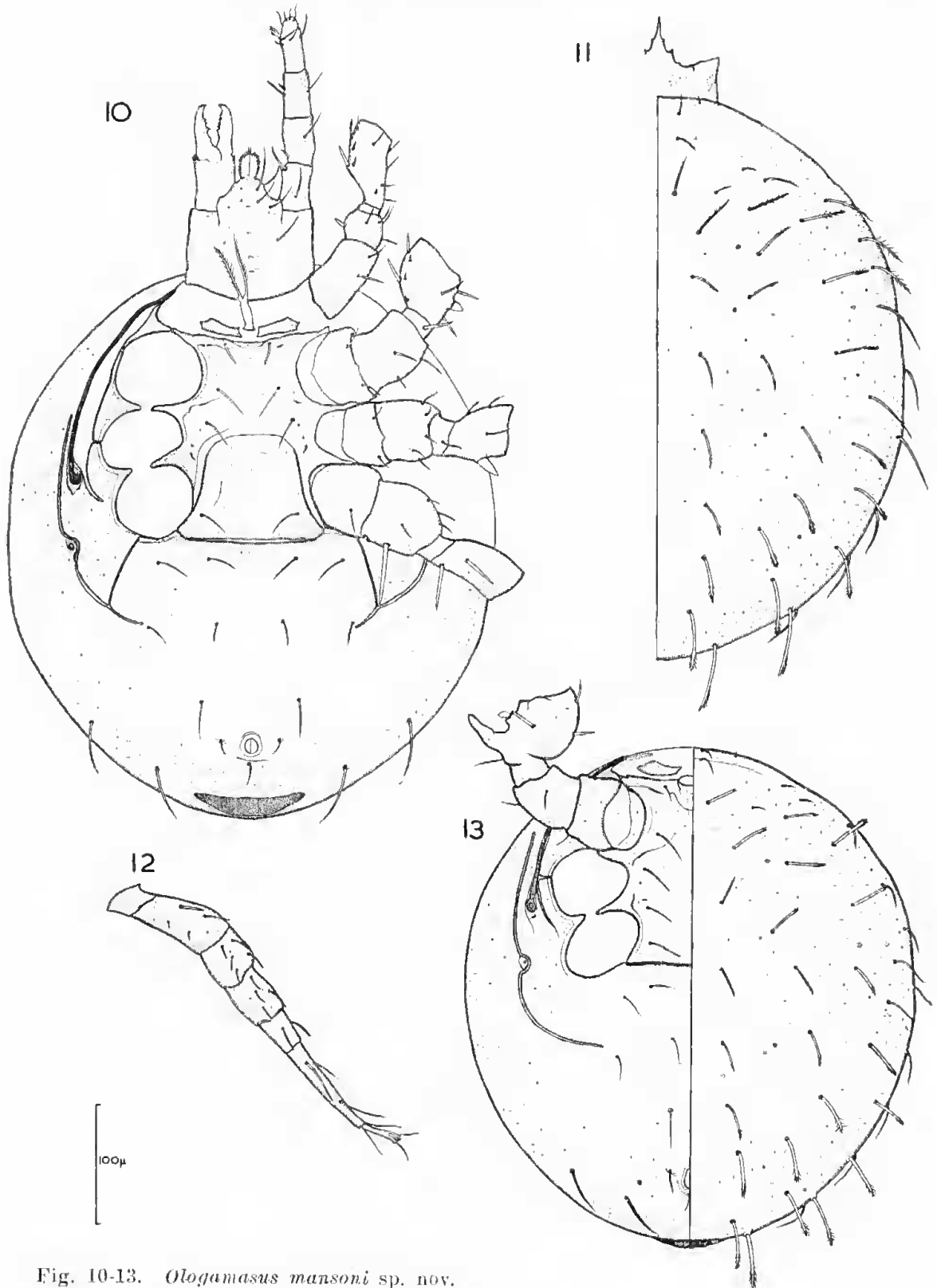


Fig. 10-13. *Ologamasus mansonii* sp. nov.

Fig. 10. Venter of female.

Fig. 11. Dorsum of female.

Fig. 12. Dorsum of distal segments from leg IV of female.

Fig. 13. Venter and dorsum of male (N.B. leg II shows posterolateral surface).

margin of the podosoma. There is a conical spur of femur II and III, but not on femur IV. On femur IV, ad_2 is not so robust as in *O. cymosus*. On trochanter IV, al is filamentous.

Male. Fig. 13. Idiosomal length, 410 μ .

As in *O. cymosus* the dorsal setae are less pilose than in the female. Otherwise, as in the female, except for the male characters which are mainly as in *O. cymosus*. There is a nodule on the posterior-lateral surface of femur II which is not present in *O. cymosus*.

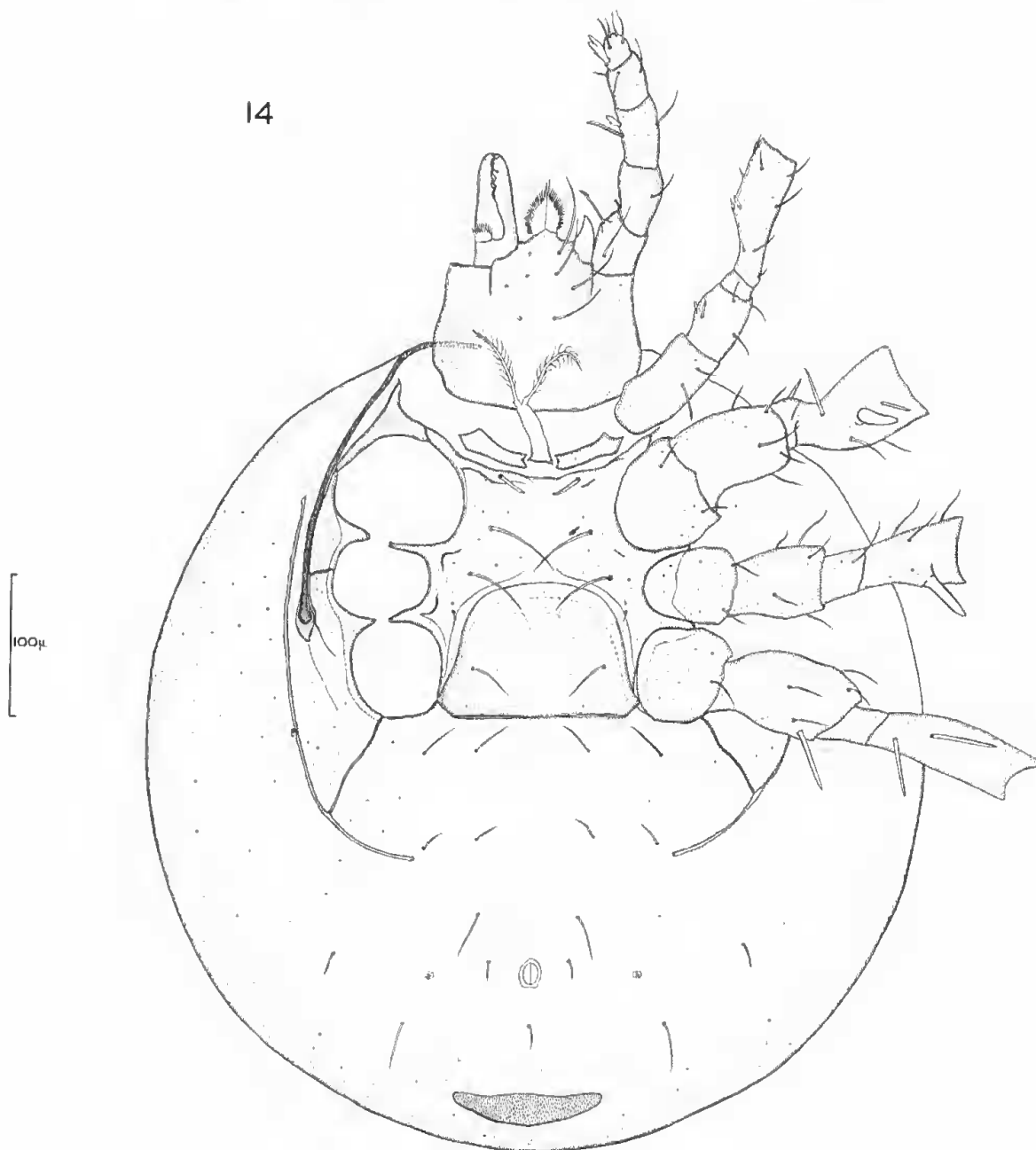


Fig. 14. *Ologamasus leptosceles* sp. nov.

Fig. 14. Venter of female.

Locality: North Island, New Zealand; holotype female, allotype male, 2 paratype females and 1 paratype male from leaf mould, Botanical Gardens, Wellington, December, 1960, coll. D. C. M. Manson.

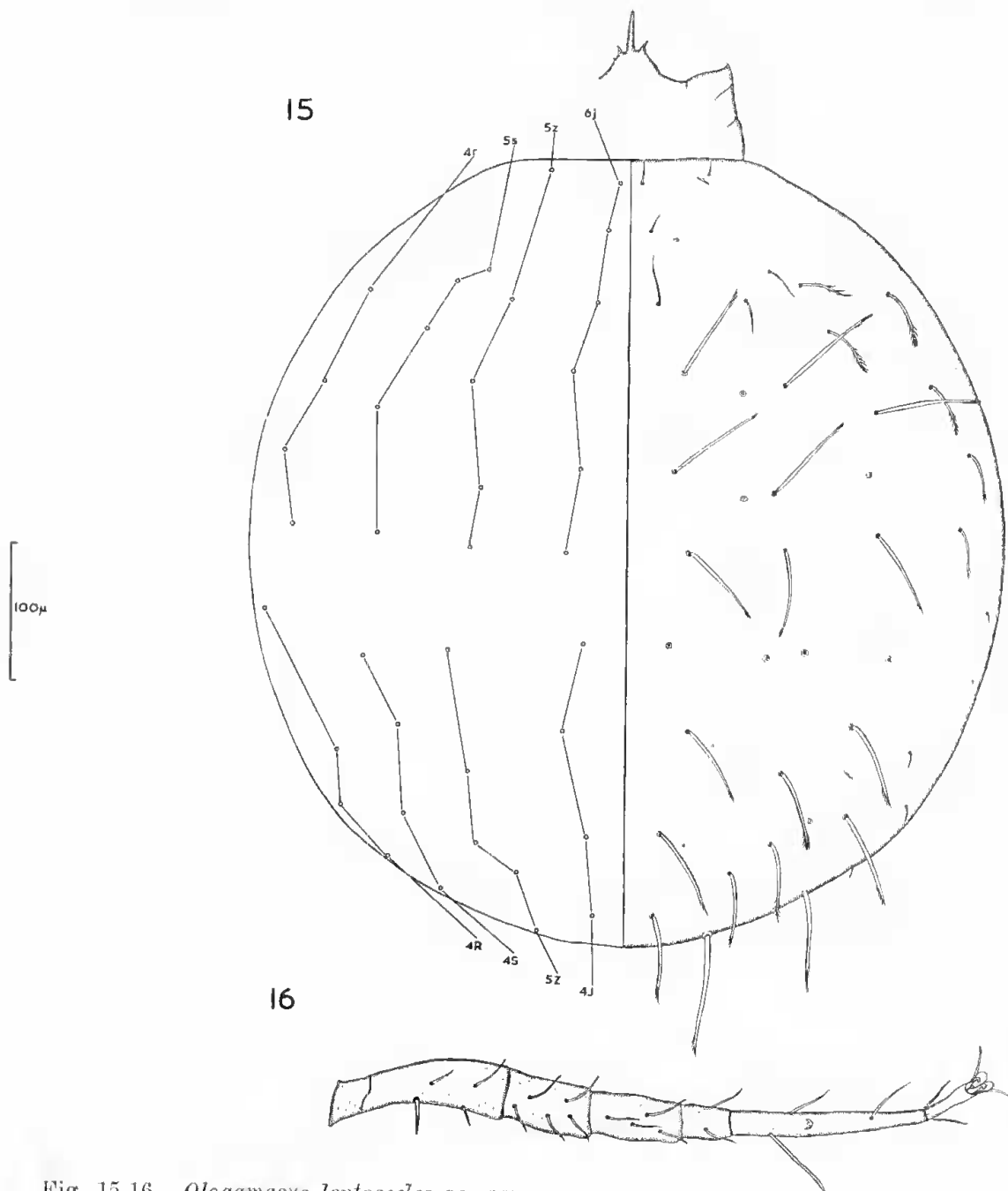


Fig. 15-16. *Ologamasus leptosceles* sp. nov.

Fig. 15. Dorsum of female.

Fig. 16. Dorsum of distal segments from leg IV of female.

***Ologamasus leptosceles* sp. nov.**

Female. Fig. 14-16. Idiosomal length, 570 μ .

The peritrematal shield is separated from the ventrianal shield.

The vertical setae are simple. There is a reduction in the number of dorsal setae, there being only five setae in row *Z* and four setae in row *R*. The setae in row *R* are very small and subequal in length to $\alpha 1$. The sternal are as in *O. cymosus*. The anterior of the posterior

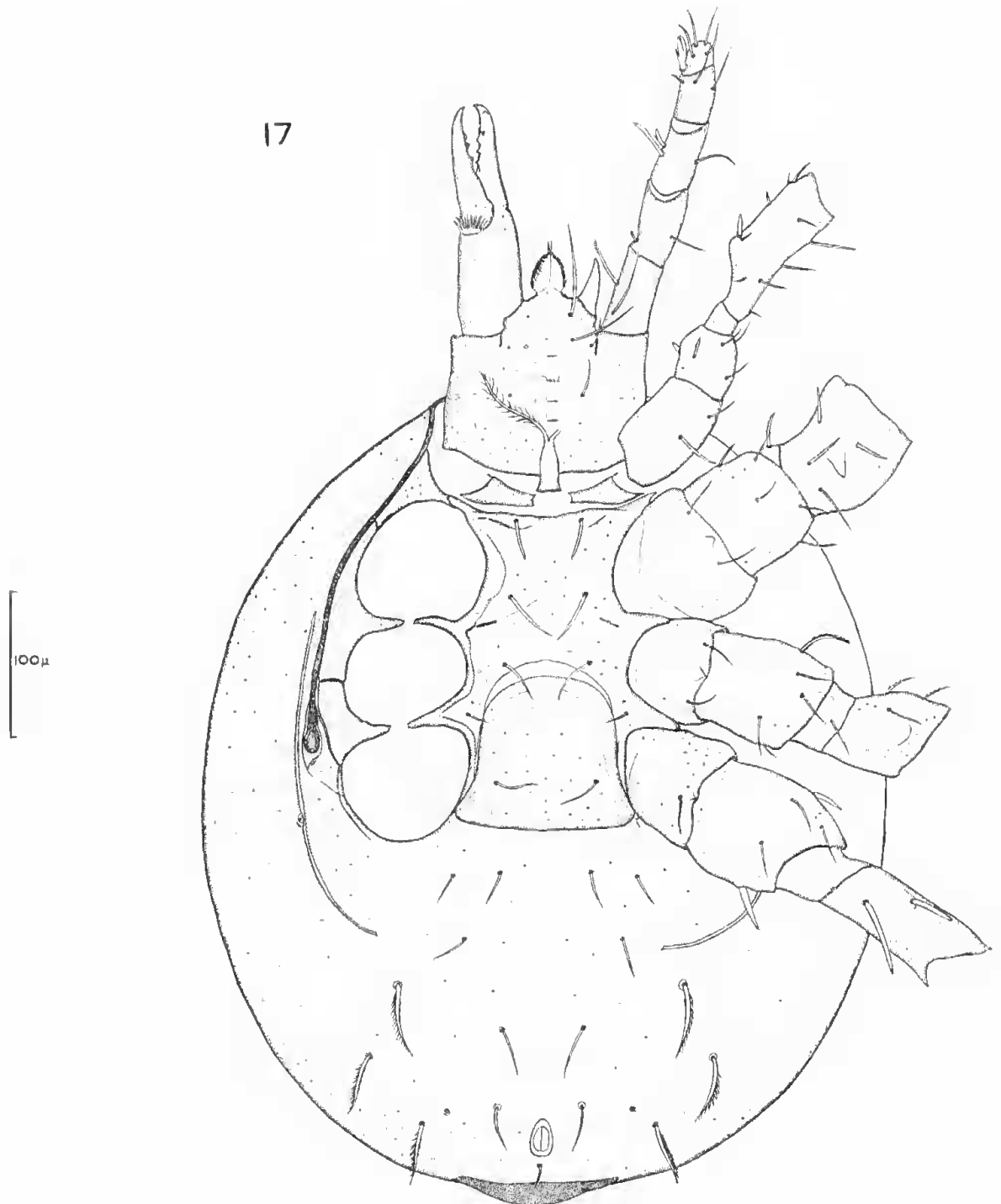


Fig. 17. *Ologamasus dumosus* sp. nov.

Fig. 17. Venter of female.

two pairs of ventral setae is only half the length of the other and not subequal. There is a conical spur on femur II and III only. On trochanter IV, *al* is filamentous. The dorsal setae of femur IV are unusual in *pd*₂ being larger than *ad*₂.

Locality: North Island, New Zealand; holotype female from leaf mould, Khandallah, Wellington, 19 December, 1961, coll. D. C. M. Manson.

***Ologamasus dumosus* sp. nov.**

Female. Fig. 17-19. Idiosomal length, 560 μ .

There is obvious reticulation on the shields. The peritrematal shield is fused to the ventrianal shield. The vertical setae are pilose. There are two more pairs of opisthonotal setae, one in row *J* and

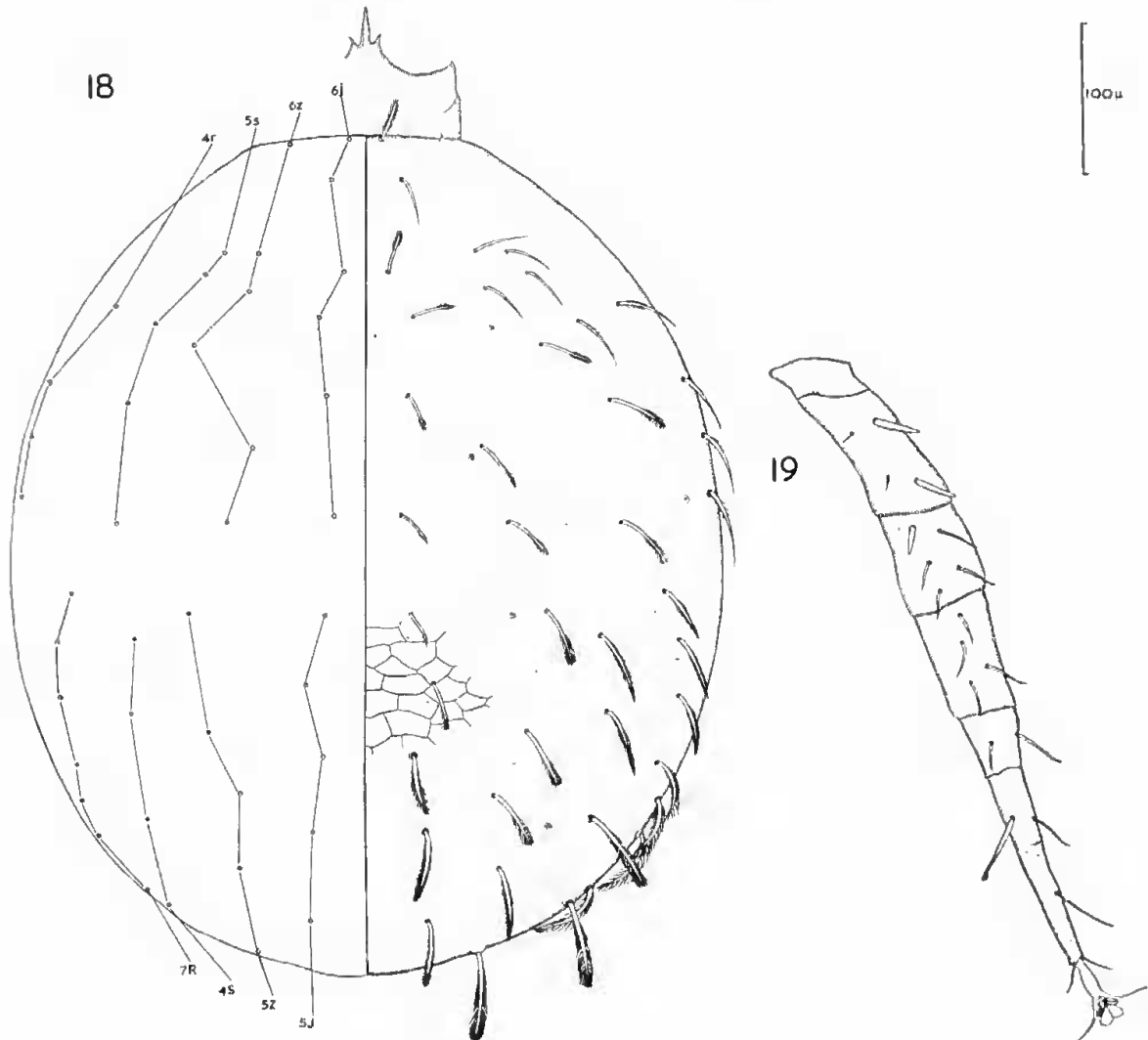


Fig. 18-19. *Ologamasus dumosus* sp. nov.

Fig. 18. Dorsum of female.

Fig. 19. Dorsum of distal segments from leg IV of female.

one in row *R*, than in *O. cymosus*. The opisthonotal setae are strongly pilose. The sternal setae are as *O. cymosus*. Three pairs of ventral setae are pilose. There is a conical spur on femur II only. Dorsally, on leg IV, *ad*₁ and *ad*₂ on the femur are equally thorn-like, and on the genu, *pd*₃ is thorn-like, also *pd*₂ on the tarsus is pilose at the tip. On trochanter IV, *al* is thorn-like.

Locality: North Island, New Zealand; holotype female from leaf mould, Botanical Gardens, Wellington, December 1960, coll. D. C. M. Manson.

***Ologamasus nucilis* sp. nov.**

Female. Fig. 20-22. Idiosomal length, 800 μ .

There is obvious reticulation on the shields. The peritrematal shield is partially fused to the ventrianal shield. The vertical setae are pilose. As in *O. dumosus*, there are five setae in row *J*. The setae in row *R* are simple. The first pair of sternal setae are only slightly longer than the fourth pair. All the ventral setae are simple.

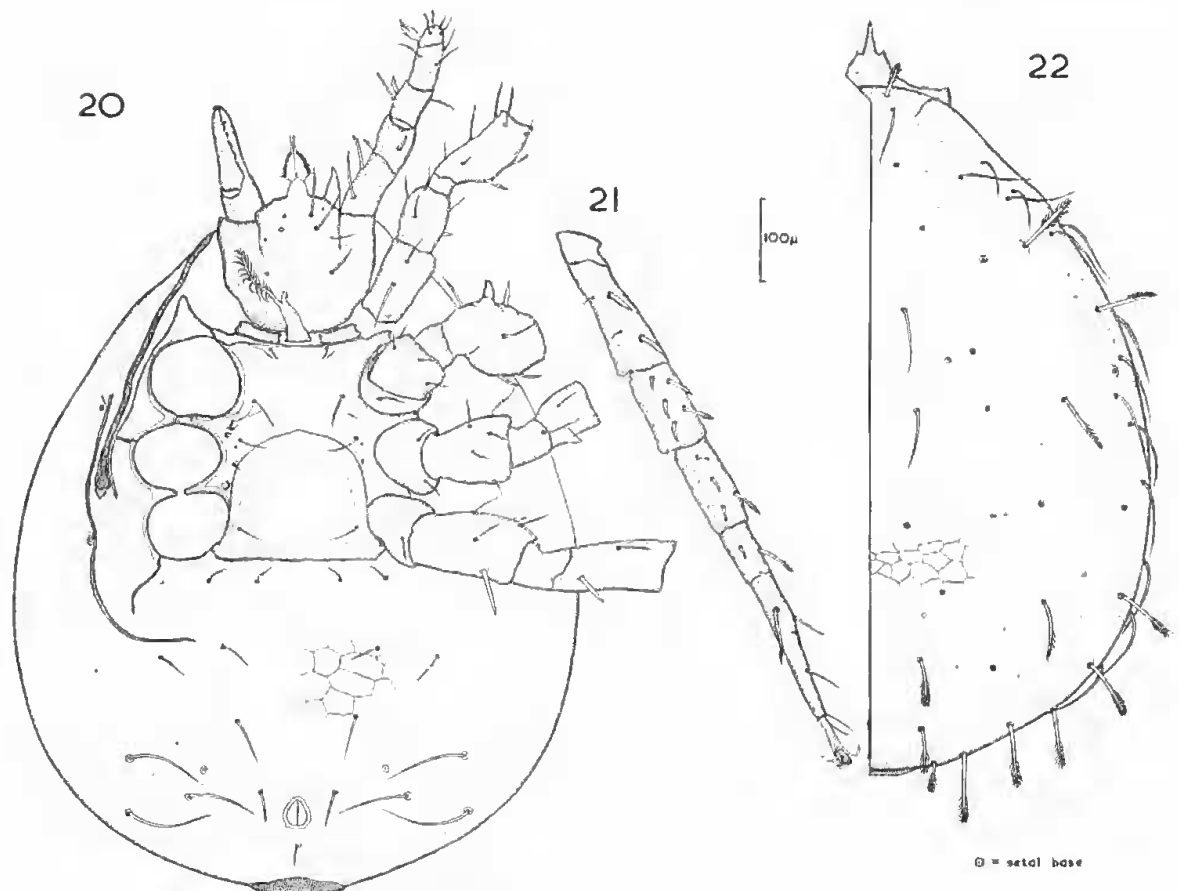


Fig. 20-22. *Ologamasus nucilis* sp. nov.

Fig. 20. Venter of female.

Fig. 21. Dorsum of distal segments from leg IV of female.

Fig. 22. Dorsum of female.

There are conical spurs on femur II and III only. A number of dorsal setae on leg IV, including pd_3 on the tarsus, are slightly pilose near the tip. On trochanter IV, al is thorn-like.

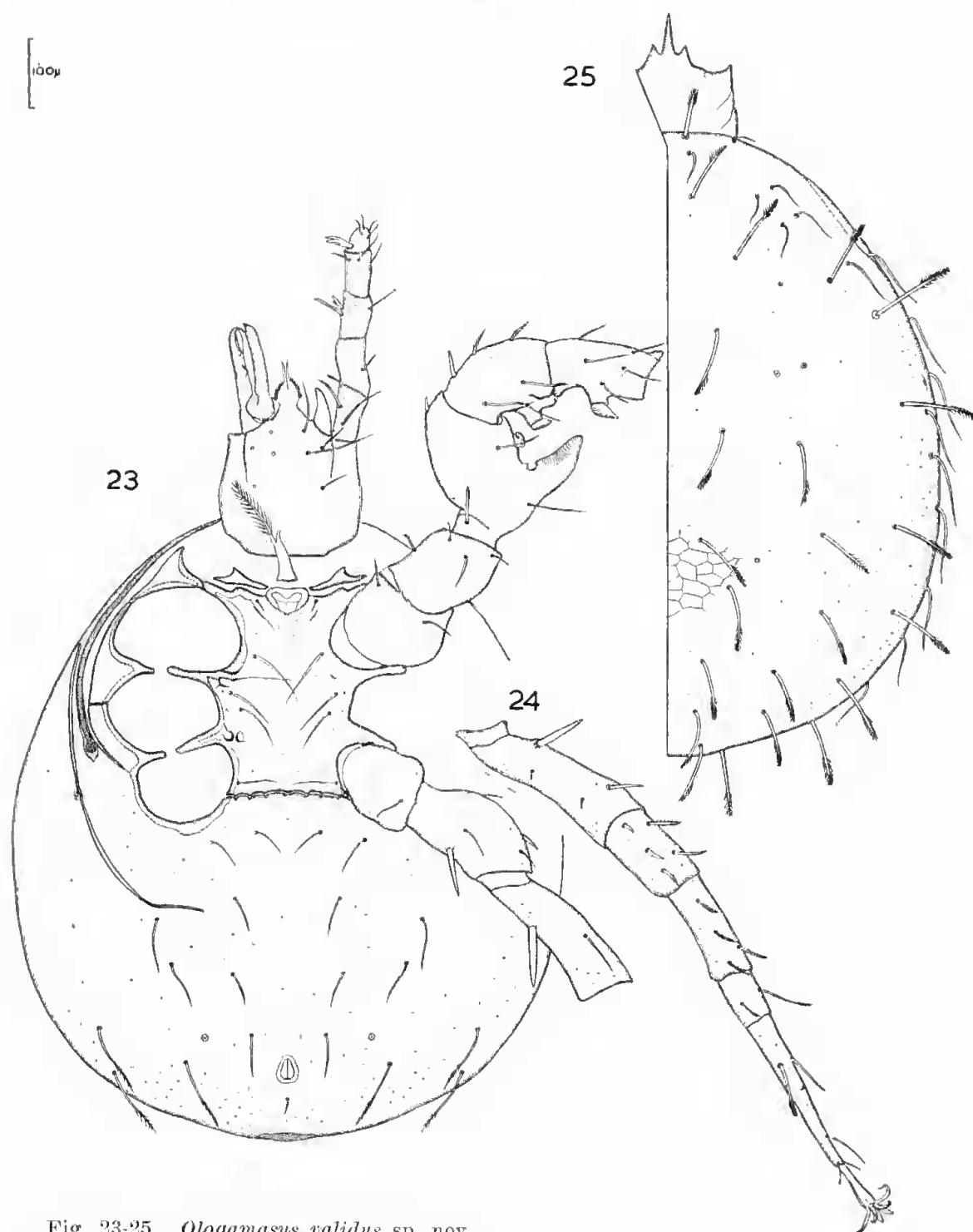


Fig. 23-25. *Ologamasus validus* sp. nov.

Fig. 23. Venter of male.

Fig. 24. Dorsum of distal segments from leg IV of male.

Fig. 25. Dorsum of male.

Locality: North Island, New Zealand; holotype female from leaf mould, Botanical Gardens, Wellington, December, 1960, coll. D. C. M. Manson.

Ologamasus validus sp. nov.

Male. Fig. 23-25. Idiosomal length, 890 μ .

The spermodaetyl is robust, with straight, parallel sides coming to a point suddenly. There is obvious reticulation of the shields. The vertical setae are pilose. As in *O. dumosus*, there are five setae in row *J*. The setae in row *B* are simple. The venter is similar to the male of *O. cymosus*, the posterior two pairs of ventral setae, for instance, are pilose. But it is unusual in having an extra, eighth pair of ventral setae. The tibia, as well as the femur and genu, of leg II is armed. On femur IV, *al* is unusual in being filamentous, while *v* and *ad*₂ form unusually stout thorns. A number of dorsal setae on leg IV, including *pd*₃ on the tarsus, are pilose. On trochanter IV, *al* is thorn-like.

Locality: North Island, New Zealand; holotype and paratype male from Waimamaku (about 100 miles north of Auckland), 21 October, 1938, coll. E. D. Pritchard.

PYRENOIDES—GROUP

There is only one species belonging to this group and that is from Victoria, Australia. The characters of the group are therefore limited to those of the species.

Ologamasus pyrenoides sp. nov.

Female. Fig. 26-28. Idiosomal length, 730 μ .

Gnathosoma. The anterior edge of the tectum hardly curves forward at all from the sides and a robust, sword-like process projects from its centre. The margin is denticulate with a pair of small spines on the central process. The chelicerae have four large teeth on the movable digit and a single, large proximal tooth on the fixed digit, but much of the apposed edges of the two digits have a series of small uniform teeth. On the palp trochanter, *av* is obviously pilose and *pv* is thorn-like, as is *v* on the palp femur.

Idiosoma. There are two anterior protruberances bearing the vertical setae and a humeral protruberance on either side, which give the body a characteristic shape. There is obvious reticulation on the shields. The dorsal shield is fused posteriorly with the ventrianal shield, a short lateral fissure separating it from the anterior of the ventrianal shield, and the posterior of the peritrematal shield. The peritrematal shield is separate from the ventrianal shield and is truncated behind, at the level of the posterior margin of podosoma.

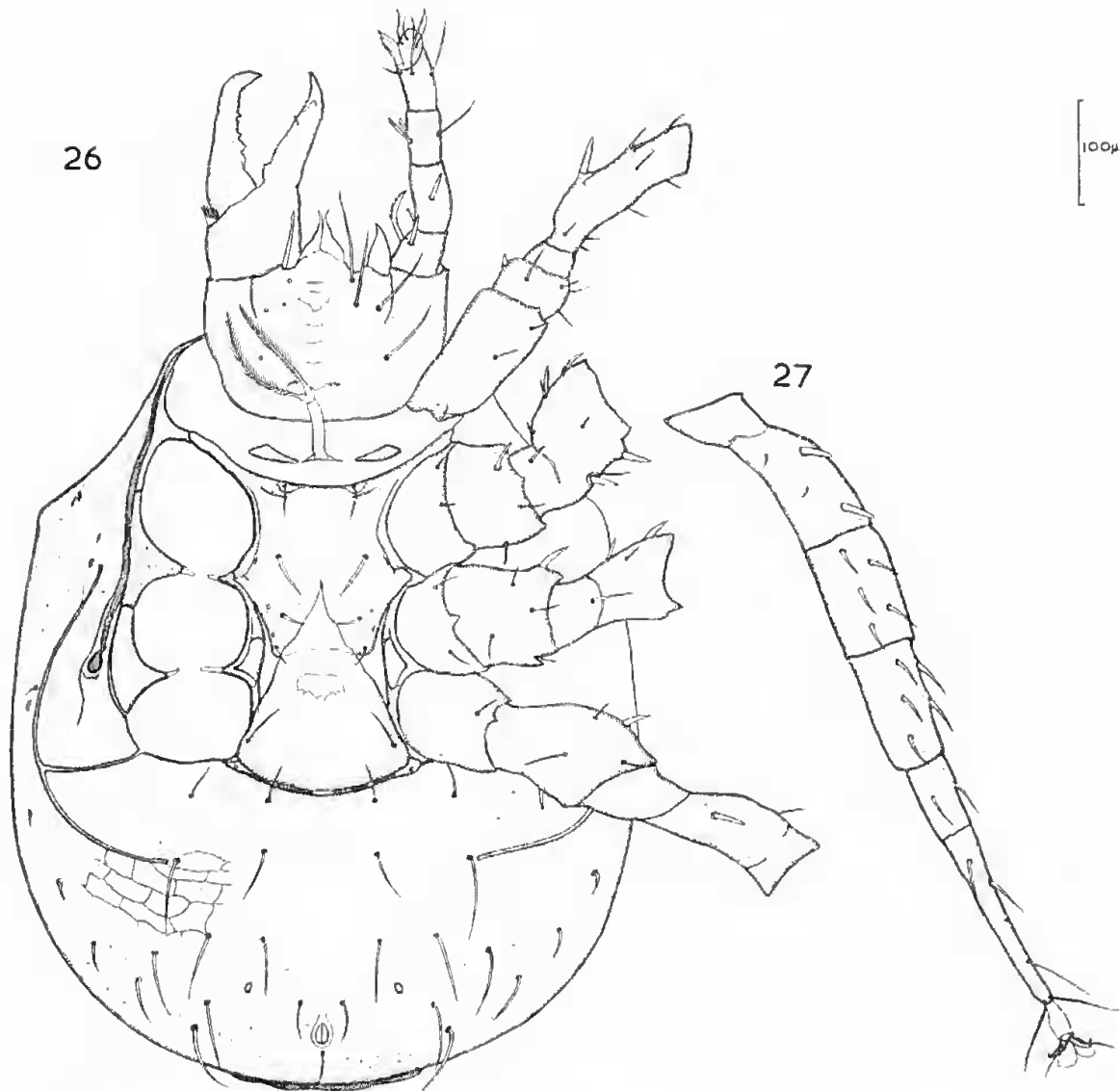
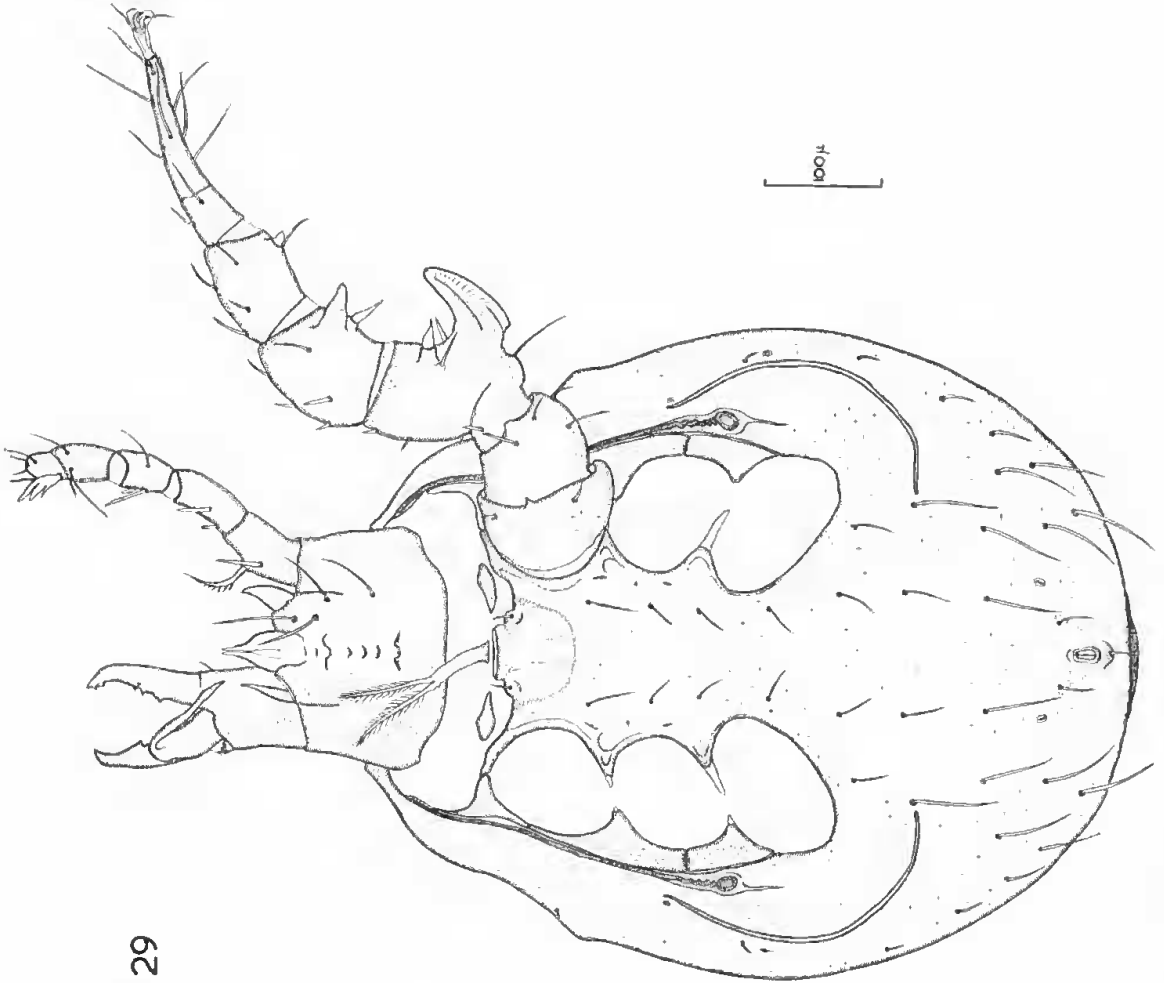


Fig. 26-27. *Ologamasus pyrenoides* sp. nov.

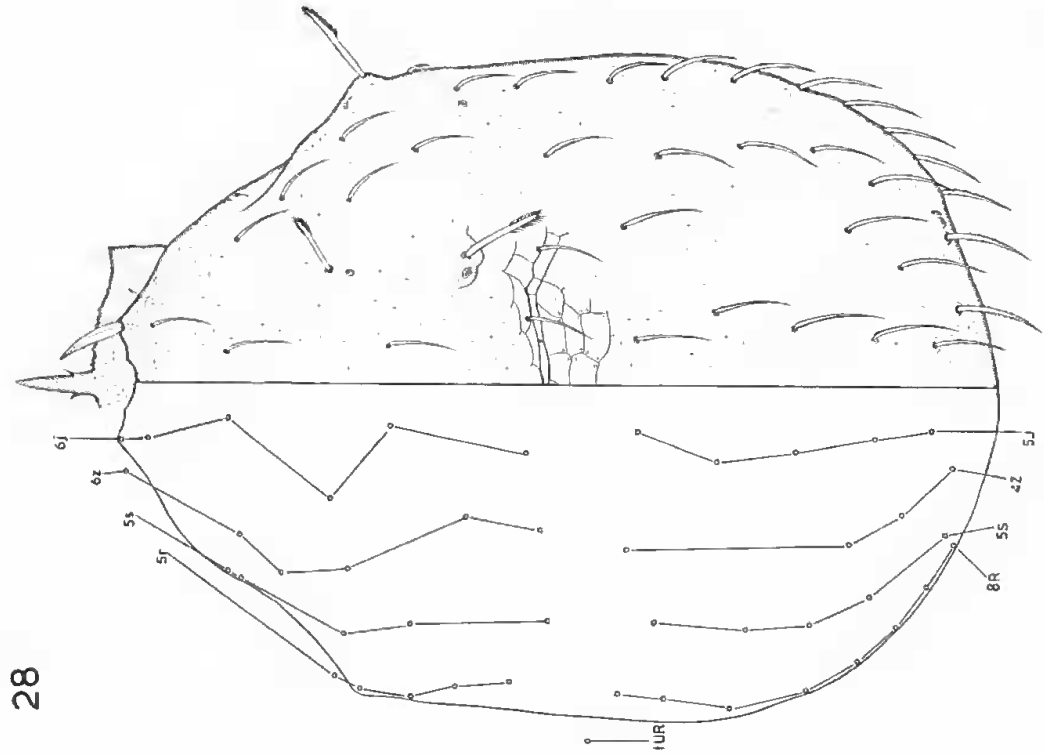
Fig. 26. Venter of female.

Fig. 27. Dorsum of distal segments from leg IV of female.

There is a single pair of prae-endopodal shields. The sternal shield is only fused with the endopodal shields II. Anteriorly, the genital shield comes to a point, which overlaps the sternal shield, reaching as far forward as the anterior edge of coxae III. There are twenty-two pairs of setae on the pronotum and twenty-three pairs on the opisthonotum. The vertical setae are large and spatulate. Three pairs of setae, j_4 , z_5 and r_2 , are obviously pilose, but some of the posterior setae are slightly pilose. The second and third pairs of sternal setae are more robust. The dorsal setae row, UR , is considered to have only one pair. There are five pairs of post-lateral setae, which are smaller, the further anterior they are.



29



28

Fig. 28-29. *Ologamasus pyrenoides* sp. nov.
 Fig. 28. Dorsum of female.
 Fig. 29. Venter of male.

Legs. There are a number of thorn-like setae on the legs as in the *cymosus*-group, but there are no conical spurs. The last three pairs of legs have ad_1 and pd_1 on the tarsus longer than md and with a slight, diaphanous flap.

Male. Fig. 29, Idiosomal length, 640 μ .

Gnathosoma. The movable digit on the chelicerae has a single tooth and the rest of the edge is smooth. The spermodactyl is bent over near its base so that it points backwards. The corniculi are slightly stalked.

Idiosoma. The dorsal shield is entire. The peritrematal shield is fused to the ventrianal shield. The sternogenital shield is fused to the ventrianal shield. The first pair of sternogenital setae are less than half the length of the others, none of which are spine-like.

Legs. Leg II has the femur, genu and tibia armed.

Locality: Victoria, Australia; holotype female, allotype male, 12 paratype females and 20 paratype males from "Antarctic Beech" (*Nothofagus cunninghamii*) litter, Beachamps Falls, Otway Ranges, 19 January, 1962, coll. G. F. Gross and P. F. Aitken.

DISCUTATUS—GROUP

The five species belonging to this group are from localities near the south-eastern coastline of Australia. The adults range in length of idiosoma from 550 μ to 1,000 μ .

Female. Gnathosoma. The anterior edge of the tectum curves forwards from the sides to a central pointed process. The margin is denticulate, some of the teeth may be large, sometimes forming a pointed process each side of the central process. The chelicerae have larger teeth, proximally and small teeth, distally, and the movable digit is less denticulate. On the palp trochanter both av and pv are simple.

Idiosoma. Obvious reticulation on the dorsal shields occurs on all species, except *O. litoprothrix*, which has simple vertical setae. The dorsal shield is separate from the ventrianal shield. The peritrematal shield is either separate from the ventrianal shield or it is partially fused to it. If it is separate, it is truncated behind at the level of the posterior margin of the podosoma. There are two or three pairs of prae-endopodal shields. The sternal shield is fused to the endopodal shields II and III. There are twenty-two pairs of setae on the podonotum. The setae r_3 , are off the dorsal shield. In three species there are thirty-three setae on the opisthonotum, but in the other two species this number is less. There are both pilose and simple setae on the dorsal shield. The pilose setae sometimes have a diaphanous

flap at the tip, as is found in some *Gamasellus* species and in *O. aberrans*. Also the simple setae, especially on the periphery, have a diaphanous, ventral ridge. The chaetotaxy of the venter is regular except that the post-lateral group of setae sometimes contains eight and sometimes seven pairs. Sometimes, one or more of the posterior pairs of ventral setae are pilose.

Legs. There are no thorn-like setae on the legs as there are in the previous two groups, and no conical spurs as there are in females of the *cymosus*-group.

Male. Gnathosoma. The movable digit on the chelicerae has a single tooth and the rest of the edge is smooth. The spermodaetyl is longer than the movable digit, and quite slender, tending to be sinuous and swollen slightly at the tip.

Idiosoma. The dorsal shield is entire in all but one species, *O. discutatus*, where it is divided. In two out of the three described males, the dorsal shield is fused to the ventrianal shield, in which case the peritrematal shield is separate from the ventrianal shield, but where the ventrianal shield is separate from the dorsal shield it is partially fused to the peritrematal shield. The dorsal chaetotaxy is as in the female, but in *O. tindalei*, *r3* is on the peritrematal shield. The sternogenital shield is separate from the ventrianal shield.

Legs. Leg II has the femur, genu and tibia armed.

***Ologamasus discutatus* sp. nov.**

Female. Fig. 30-32. Idiosomal length, 820 μ .

The vertical setae are pilose. Thirty-three pairs of opisthonotal setae. Besides *j1*, the following setae are pilose; *j4*, *s5*, *r2*, *J3*, *J4*, *J6*, *Z3*, *Z6*, *S1* and *S6*. The posterior pair of ventral setae are pilose. All eight post-lateral setae are on the interscutal membrane.

Male. Fig. 33 and 34. Idiosomal length 740 μ .

This male is unusual in being the only adult in the genus with a divided dorsal shield. The ventrianal shield is fused to the dorsal shield. Except for the above points and the sexual characters which are as for the group, the male is like the female.

Deutonymph. Fig. 35. Idiosomal length, 530 μ .

The setal form and chaetotaxy is similar to the adult, but in row *J* and *Z* there appears to be a pair of setae missing, and in row *J* none of the setae are pilose.

Protonymph. Fig. 36. Idiosomal length, 450 μ .

The number of setae is considerably reduced.

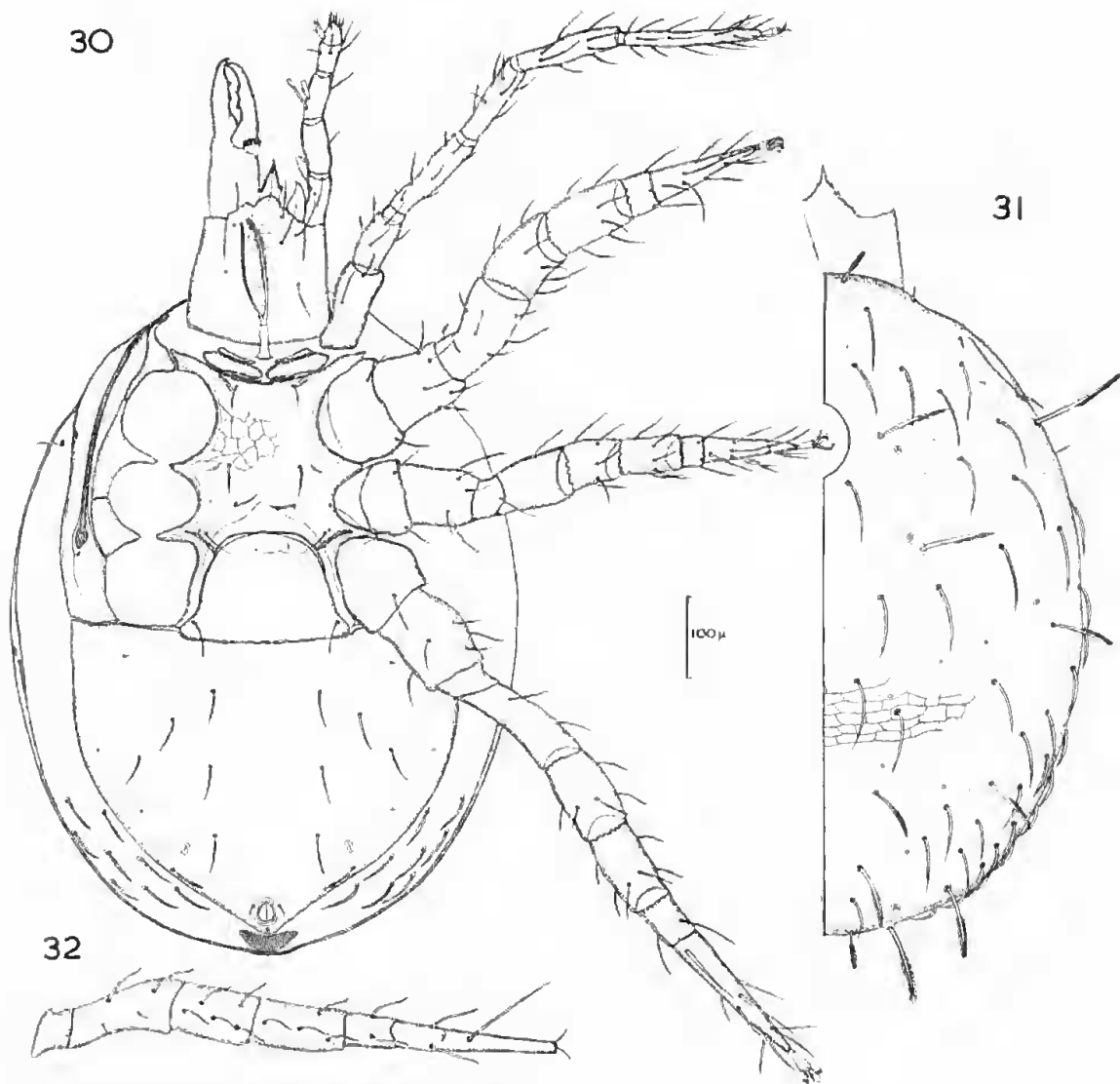


Fig. 30-32. *Ologamasus discutatus* sp. nov.

Fig. 30. Venter of female.

Fig. 31. Dorsum of female.

Fig. 32. Dorsum of distal segments from leg IV of female.

Locality: Victoria, Australia; holotype female, allotype male, morphotype deutonymph, morphotype protonymph, 2 paratype females, 9 paratype males, 13 paratype deutonymphs and 2 paratype protonymphs from leaf litter, 2-6 miles north of Sardine Creek (just south of the Australian Alps), 23 November, 1959, coll. G. F. Gross.

***Ologamasus litoprothrix* sp. nov.**

Female. Fig. 37-39. Idiosomal length, 750 μ .

Vertical setae are simple. Thirty-three pairs of opisthonotal setae. There are four pilose pairs of dorsal setae; *j*4, *z*5, *r*2, and *Z*6. None of the ventral setae are pilose. Three pairs of the post-lateral

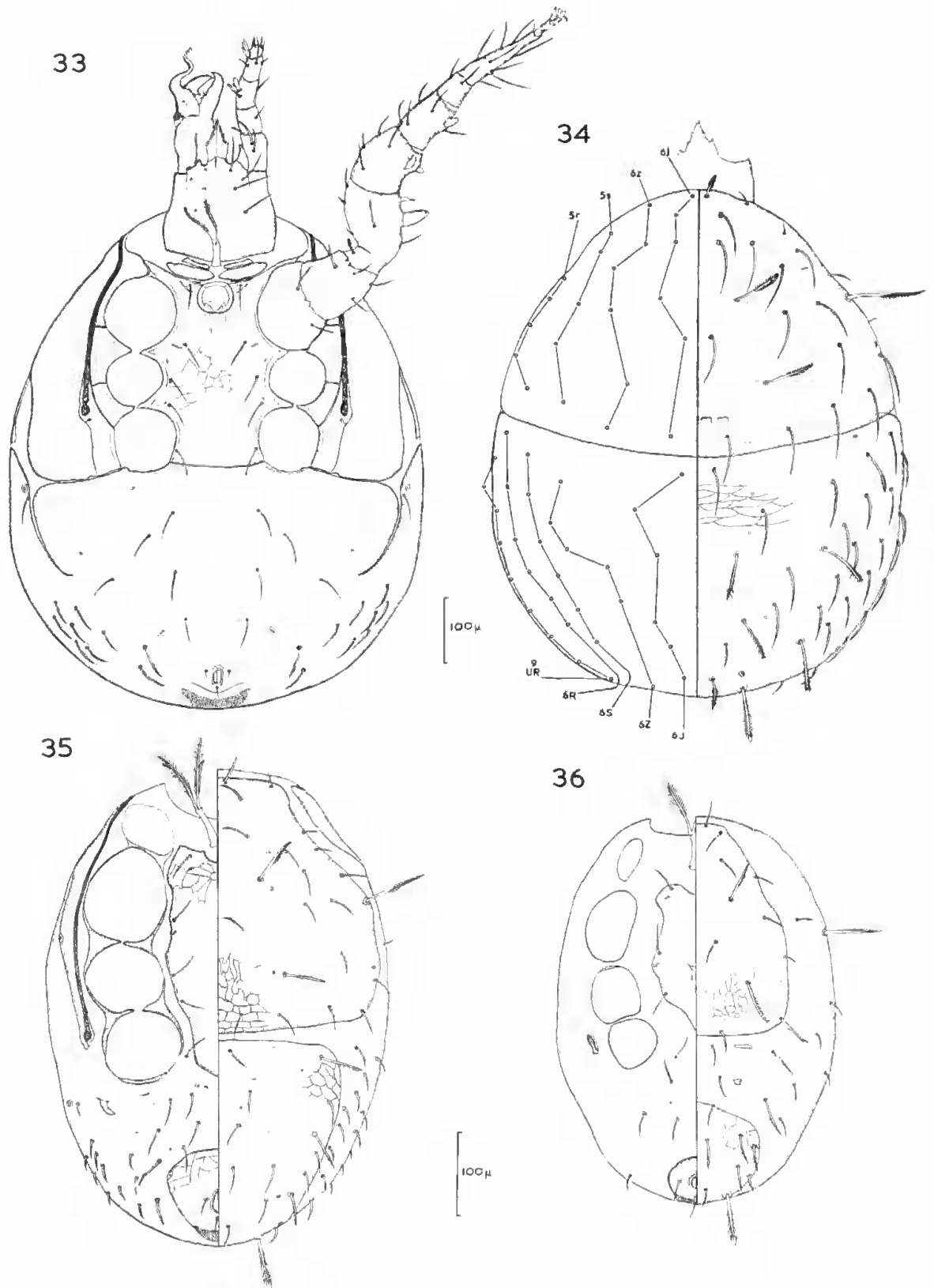


Fig. 33-36. *Ologamasus discutatus* sp. nov.

Fig. 33. Venter of male.

Fig. 34. Dorsum of male.

Fig. 35. Venter and dorsum of deutonymph.

Fig. 36. Venter and dorsum of protonymph.

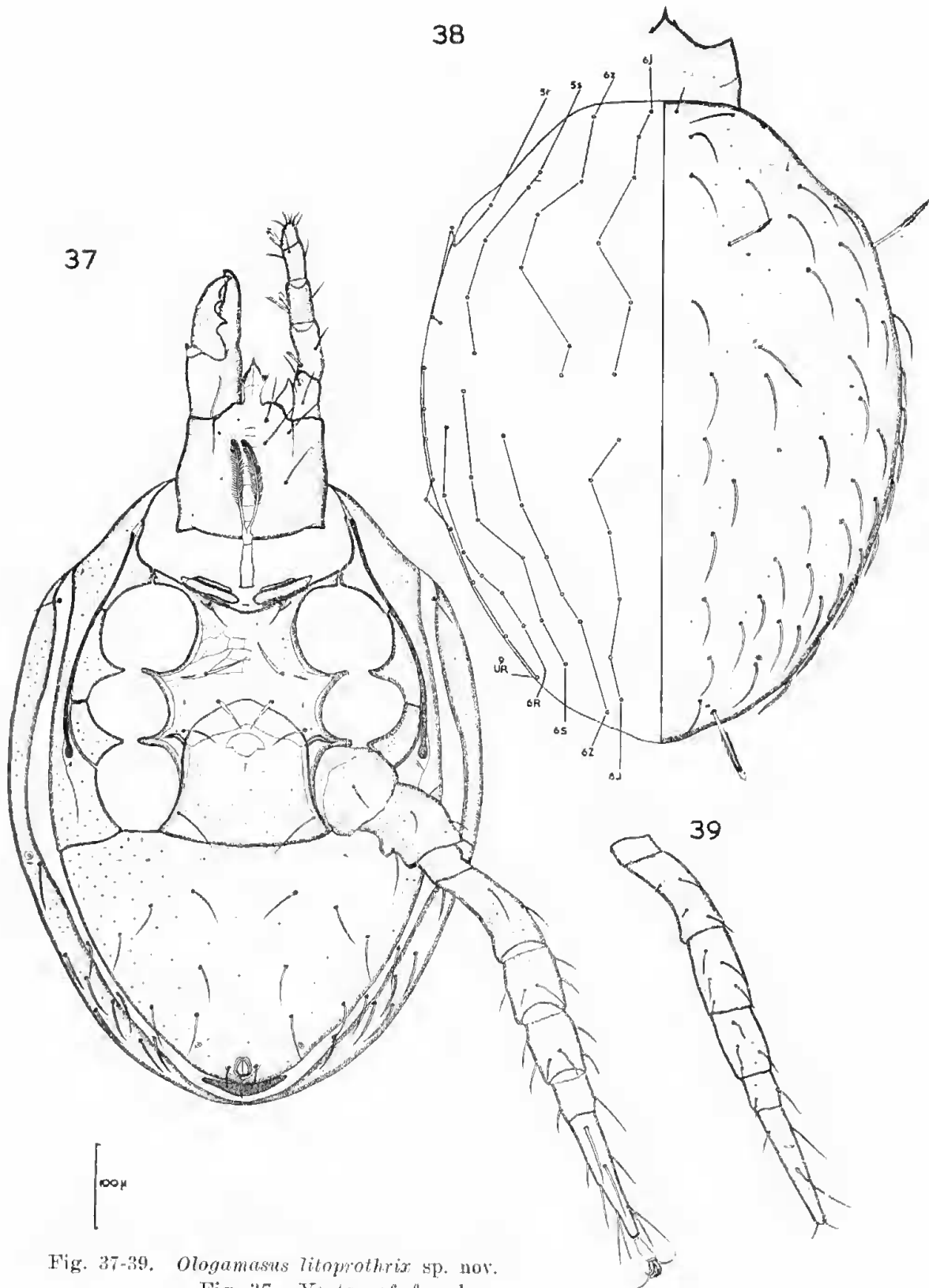


Fig. 37-39. *Ologamasus litoprothrix* sp. nov.

Fig. 37. Venter of female.

Fig. 38. Dorsum of female.

Fig. 39. Dorsum of distal segments from leg IV of female.

are on the interscutal membrane and five pairs on the dorsal shield. Trochanter IV has a small spur on its postero-lateral surface.

Locality: Victoria, Australia; holotype female, and 2 paratype females from leaf litter and moss, Turtons Track, Otway Ranges, 18 January, 1962, coll. G. F. Gross and P. F. Aitken.

***Ologamasus tindalei* sp. nov.**

Female. Fig. 40 and 41. Idiosomal length, 1,000 μ .

This species is very like *O. discutatus*. There are two obvious differences: only four pairs of post-lateral setae are on the interscutal

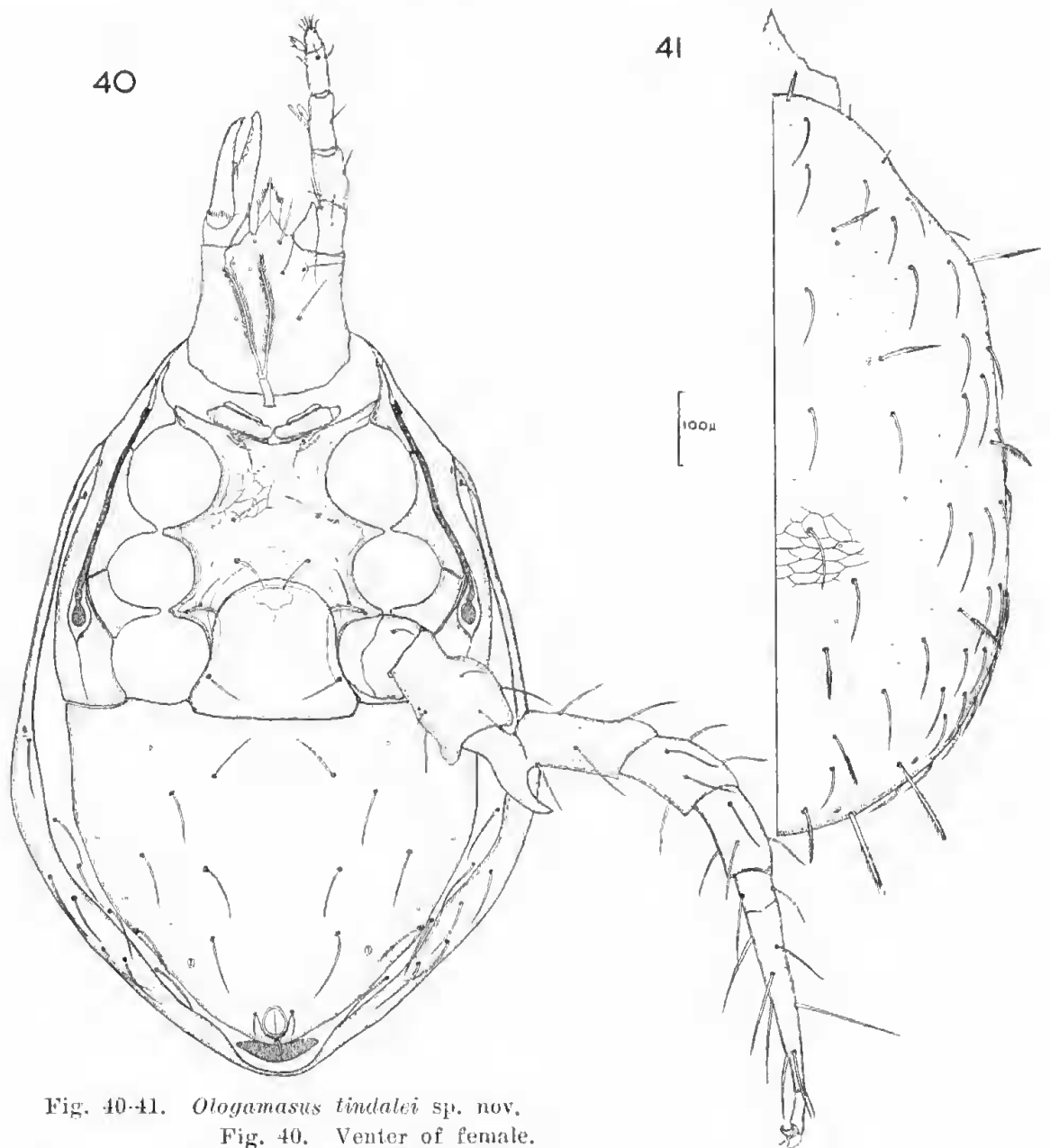


Fig. 40-41. *Ologamasus tindalei* sp. nov.

Fig. 40. Venter of female.

Fig. 41. Dorsum of female.

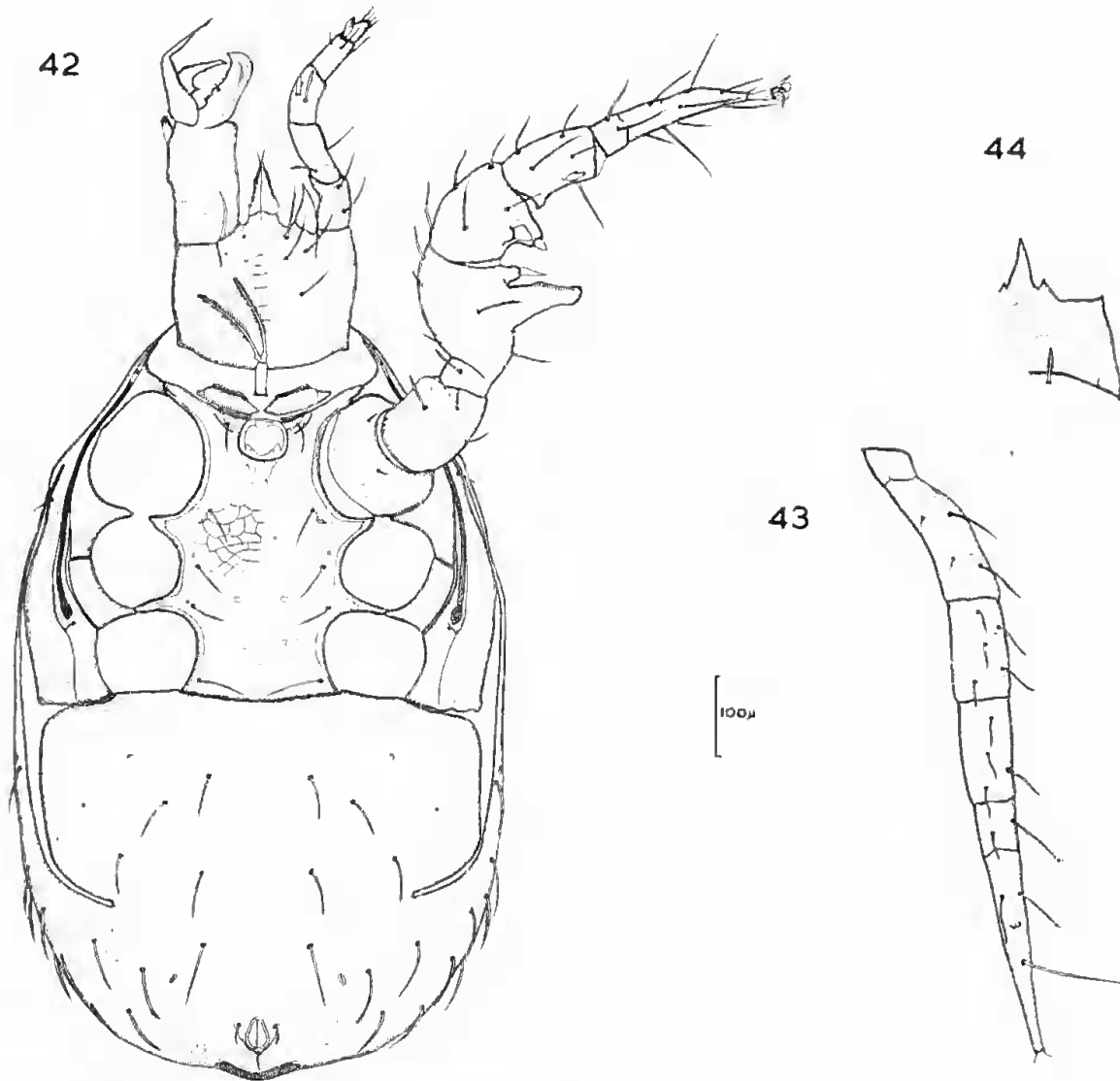


Fig. 42-44. *Ologamasus tindalei* sp. nov.

Fig. 42. Venter of male.

Fig. 43. Dorsum of distal segments from leg IV of male.

Fig. 44. Tectum of male.

membrane, the other four are on the dorsal shield; femur IV has a sickle-like spur on its posterolateral surface.

Male. Fig. 42-44. Idiosomal length, 930 μ .

Differs from *O. discutatus* in having an entire dorsal shield. Also the spermodactyl is somewhat angular and the fixed digit has a dorsal crest. The posterior spur on genu II is raised on a process.

Locality: Australian Capital Territory, Australia; holotype female (LF3M1) and allotype male (LF3M2) from moss and litter among "Snow Grass" near "Snow Gums" (*Eucalyptus niphophila*) at 5,700 feet on Mount Ginini (northern edge of Australian Alps), 17 October, 1965, coll. N. B. Tindale.

in the peripheral rows, *R* and *UR*. There are two pairs of prae-endopodal shields, the small posterior pair appears to be fused with the sternal shield. The peritrematal shield is partially fused to the ventrianal shield. The posterior pair of ventral setae are pilose. There appears to be only seven pairs of post-lateral setae, all on the interscutal membrane. Seta *v* on femur IV is simple. A number of dorsal setae on leg IV are pilose.

Male. Fig. 47-49. Idiosomal length, 690 μ .

The spermodactyl and spurs on leg II are similar to those of *O. discutatatus*. It is the only known male in the genus with the ventrianal shield separate from the dorsal shield. There are three pairs of prae-endopodal shields. The setae are as in the female, but one post-lateral pair is on the ventrianal shield.

Locality: New South Wales, Australia; holotype female (LF72M1) and allotype male (LF72M2) from *Eucalyptus* leaf litter and grass, Gogerley Point (about 20 miles south of Sydney), 7 August, 1965, coll. R. V. Southcott.

***Ologamasus virgosus* sp. nov.**

Female. Fig. 50-52, and 54. Idiosomal length, 550 μ .

Besides $\alpha 1$ being pilose, the pilose dorsal setae are as in *O. discutatatus*, but because there are only twenty-three pairs of setae on the opisthonotum their numbers are different (*i.e.*, *J3*, *J4*, *J6*, *Z2*, *Z4*, *S1* and *S2*) in this region. The peritrematal shield is partially fused to the ventrianal shield. Three pairs of ventral setae are pilose. One pair of post-lateral setae is on the ventrianal shield. Seta *v* on femur IV is modified to a short spur. More setae on leg IV are pilose than in *O. southcotti* and there are pilose dorsal setae on legs II and III.

Deutonymph. Fig. 53. Idiosomal length, 460 μ .

A lot of dorsal setae are pilose, but the setal pair, *Z1*, are not. There are twenty-four pairs of setae on the opisthonotum, there being an extra pair between what would be *Z3* and *Z4* in the female. The form of the leg setae is as in the female, except that *v* on the femur is not so stout.

Locality: New South Wales, Australia; holotype female (LF72M3), morphotype deutonymph (LF72M4) and paratype deutonymph (LF72M5) from *Eucalyptus* leaf litter and grass, Gogerley Point (about 20 miles south of Sydney), 7 August, 1965, coll. R. V. Southcott.

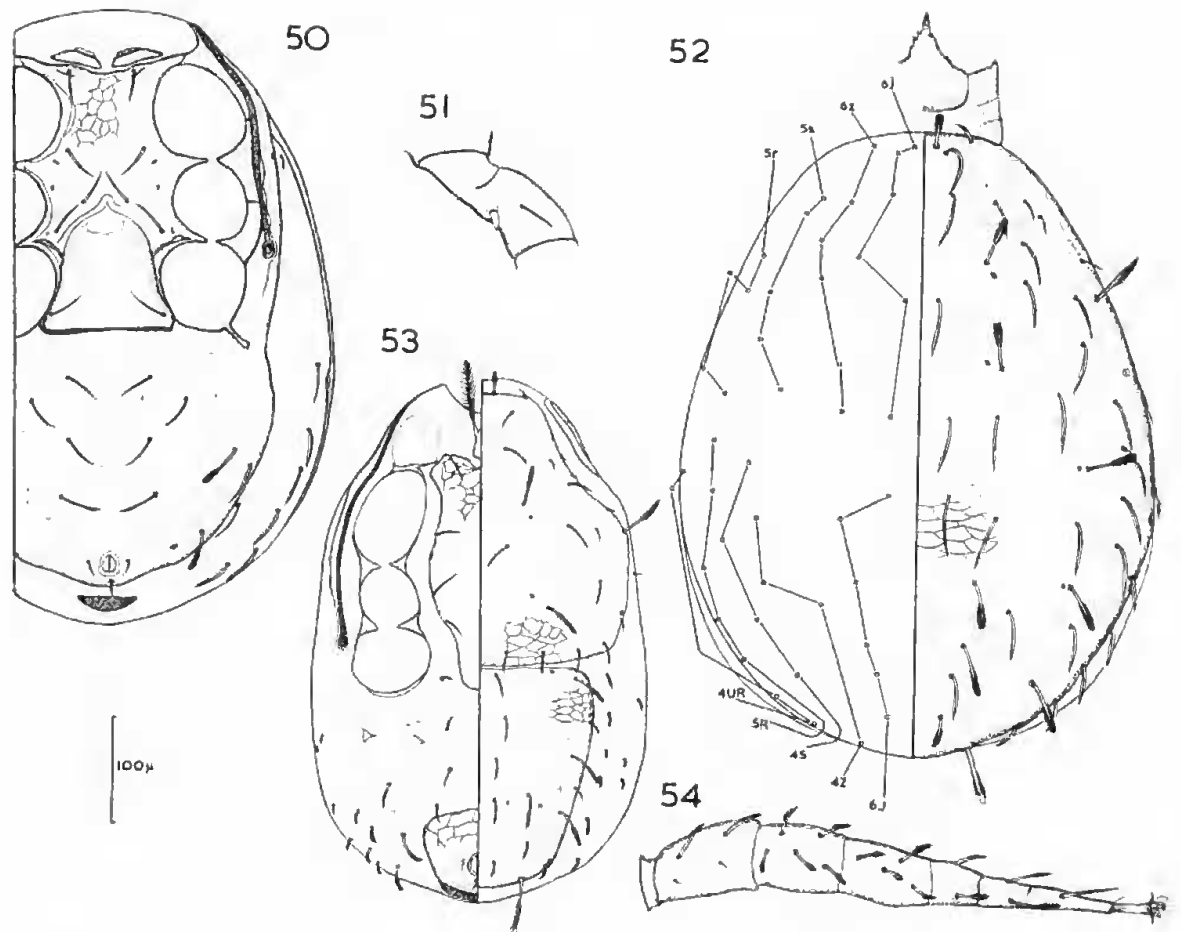


Fig. 50-54. *Ologamasus virgosus* sp. nov.

Fig. 50. Venter of female.

Fig. 51. Venter of femur IV of female.

Fig. 52. Dorsum of female.

Fig. 53. Venter and dorsum of deutonymph.

Fig. 54. Dorsum of distal segments from leg IV of female.

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ZUSAMMENFASSUNG

Ologamasus Berlese, ist als solche wieder-definiert und wird als der Gattung *Cyrtolaclaps* Berlese nahestehend betrachtet. Ein Schlüssel wurden ausgearbeitet für die Bestimmung bekannter Adulten von zwölf, neuen Spezies der Gattung *Ologamasus*. Der folgenden neuen Spezies, die zu drei Gruppen gehören, wurden beschreiben: von Neuseeland, *Ologamasus cymosus*, *masoni*, *leptosecles*, *dumosus*, *nucilis* und *validus*; von Australien, *O. pyrenoides*, *discutatus*, *litoprolhrix*, *tindalci*, *southcotti* und *virgosus*.